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661 ANDERSEN DRIVE · PITTSBURGH, PENNSYLVANIA 15220-2745 (4

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May 1, 1995

Project Number 0206

Mr Jim Colter (Code 1823)
Remedial Project Manager
Northern Division
Naval Facilities Engineering Command
10 Industrial Highway, MS#82
Lester, Pennsylvania 19113

Reference: Clean Contract No. N62472-90-D-1298,
Contract Task Order No 0138

Subject: Draft RCRA Facility Investigation Report
NWIRP Calverton, New York

Dear Mr Colter

Please find enclosed four copies of the subject report for your use This report incorporates your comments as indicated in the attached comment/response letter As requested, copies have been forwarded to TRC members as per your transmittal letter (attached)

If have any questions or require additional information, please call me at (412) 921-8375

Sincerely

David D. Brayack

David D Brayack, P.E
Project Manager

/DDB

cc. Mr R Boucher (Navy) w/o attachment
Mr. D. Rule (Navy) w/o attachment
Mr J Trepanowski (HNUS)
Mr D Hutson (HNUS)
Mr. J Farrell (HNUS) w/o attachment
File. 1953

COMMENTS ON THE RCRA FACILITY INVESTIGATION SAMPLING VISIT FOR NAVAL WEAPONS INDUSTRIAL RESERVE PLANT CALVERTON (NWIRP CALVERTON), NEW YORK, JANUARY 1995

Comments from Shannon Behr

General comments on the subject document:

1. **Comment**: As a general comment on the selection of pathways for the Human Health Risk Assessment, game species should be considered. Since they do allow hunting by permit at NWIRP Calverton, species such as the Whitetail Deer should be considered a pathway to human receptors.

   Response: According to Navy representatives at the site, hunting within the fence is not permitted. As a result, it should not be considered a historic or current pathway. Hunting could be permitted in the future, however, ingestion of game meat would not be considered a significant exposure pathway for the quantitative risk assessment. This exposure route, although identified in RAGS, is not considered significant at this facility because of the relative small areas of contaminated soils within the sites in question relative to the range of food available and the observation that in these areas of contamination there is very limited vegetation present.

   Uncertainty with respect to the bioaccumulation in plants and subsequently, in mammals and the exposure assessment which would be needed make conclusions that could be drawn highly questionable with respect to the well documented and supportive direct contact exposures which were evaluated.

2. **Comment**: An indication of groundwater flow direction on the figures would be very helpful Can this be done?

Response: Groundwater flow directions are presented in the hydrogeology section for each site, e.g. Figure 4-9, page 4-27. As discussed on 04/14/95, groundwater arrows will be added to figures presenting soil gas and groundwater data.

Specific comments on the subject document:

Executive Summary

3. **Comment**: Ecology Section, Page ES-6. This section would be more appropriately titled "Species of Concern". The section inadequately details the "ECOLOGY" of the station. A more complete description of the ecology should include all species, rather than just threatened or endangered. Commonly occurring species that are representative of the habitat (such as soil invertebrates, avian species and mammalian species) should also be addressed. Vegetative species should also be considered. Incorporating additional text coupled with species lists would more appropriately describe the ecology of the site.

   The last paragraph on that page states "Numerous additional endangered and threatened plant species occur within the study area...". Which ones? A list or table of these species would be very helpful.

   Response: This comment is valid, however, the performance of an ecological risk assessment is well beyond the scope of the RFI. An attempt was made to placate concerns regarding one endangered species (in New York only) at one site. To expand the assessment to include grasses and trees would only serve to cloud the issues and the fact that the Subsurface contamination at Site 1 is the problem.

   A complete list of threatened and endangered species as identified in the Natural Resources Survey will be included only in a supplemental ecological assessment.

4. **Comment**: Page ES-12. In describing the fire training area in paragraph 3, the areas are described as being covered by "marsh-type vegetation". This is a misleading term, especially since the text goes on to say that the water table is 10 to 15 feet below grade surface with no evidence of standing water. The vegetative species present at the site should be more accurately described (eg. scientific name).

Response: If requested, HNUS could conduct a vegetative survey of each of the sites.

Chapter 1

No specific comments on Chapter 1.

Chapter 2

5. **Comment**: Table 2-5. The number of environmental soil samples taken is quite a low number of samples. Code 183 was not involved in the scoping phase of this project, where the number of samples was determined. This limited sampling may be looked upon unfavorably by the Region II Biological Technical Assistance Group (BTAG) when they are given the document for review. We will have to wait for their comments.

   Response: Agreed.

6. **Comment**: Selection of Potential Chemicals of Concern, First Paragraph. Please explain what is meant by this sentence: "Final retention as a potential chemical of concern is dependent upon whether or not human toxicological data are available for the chemical." Does this mean that if no literature values exist, a potentially harmful chemical will be overlooked???

   Response: If a chemical exhibits toxicity in humans, the chemical is considered. However, the scope of the toxicological research which is performed is limited by budgetary and temporal constraints. It is unnecessary to quantitatively consider chemicals for which tox data are not available. As it was, over 100 PCOCs were evaluated. The conservative approach used undoubtedly accounts for any possible oversights which may have been introduced by not accounting for an unknown chemical at some approximate concentration.

7. **Comment**: Page 2-77. Paragraph two states that "[i]nhalation exposure is not believed to be a significant exposure route." The rationale for this is acceptable for the current land use scenario; however, this pathway should be considered as part of the potential future

land use. For example, future residential receptors may be exposed to inhalation of contaminants during activities such as gardening.

Response: As discussed during our teleconference, inhalation is a insignificant component of chemical ingestion, except when considered the only exposure route, e.g. fugitive dust doses while gardening are minor in comparison to the direct contact exposure routes.

8. **Comment**: Table 2-13, Page 2-79. Surface water and sediment exposure routes should be considered for both future adult and child residents; or a stronger rationale than the one presented in section 2.4.3.3 should be provided as to why these exposure routes are excluded. The regulators may want these receptors included, since strong justification is not provided to exclude them.

Response: The current exposure scenario is considered sufficient. The rationale for exclusion will be expanded upon by adding the following text:

Recreation at the Northeast Pond is the only relevant activity which may result in exposure. Because the pond is shallow (less than 4 feet) swimming and similar activity is not reasonable. Wading, however, is a reasonable activity and associated contacts with surface water and sediments (from fishing or amphibian collection, etc.) are evaluated. Adults are not likely to participate in such activity but have been conservatively accounted for through examination of an adolescent receptor with a lower body weight.

9. **Comment**: Page 2-83, Table 2-14, under "Soil Exposure" section. Are the recreational and residential exposure frequencies the same for both adults and children/adolescents? The exposure frequency for the recreational scenario for a child/adolescent may by higher than that of an adult (eg. summer recess from school).

Under "Averaging Time" section. For the averaging time of carcinogens, what does "LT" stand for?

Response: Adolescents only are considered in the recreational exposure evaluation. This receptor group is considered representative of the individuals which are likely to

contact surface water/sediment at the prescribed contact rates. Child (0-6 yr) exposure in this manner is considered unlikely. Adults are not likely to contact these media extensively and are not considered appropriate. Fifty-two exposures/yr is conservative as it represents over half of the summer recess at 2.6 hr/day.

LT is the variable for Receptor Lifetime. It will be added to the exposure assessment input table.

10. **Comment**: Page 2-84. Again, the exposure frequency under surface water exposure may be low. Children/adolescents could have a longer exposure frequency than 52 days/year.

Response: As per our teleconference of 4/13/95, HNUS contacted the EPA for guidance. The EPA indicated that other than RAGs, they have no specific values. Note: RAGs presents 7 days per year as an average exposure frequency. In view of the nature of the "pond", 52 days per year should be appropriate (approximately 1/2 of the summer). For comparison EPA Region IV uses a 45 day per year exposure frequency.

11. **Comment**: Page 2-90, Ecological Risk Assessment Approach Section. The first sentence in this section states "Although no technical guidance is currently available for the performance of quantitative ecological risk assessments, the impact of detected chemicals in surface water and sediment on indicator species will be considered by direct comparison of representative concentrations to available toxicological and TBC values." This statement is incorrect. Technical guidance to perform quantitative ecological risk assessments does exist. The following is a list of references that we use to review ecological risk assessments at Northern Division. Region II may have specific guidance as well.

U.S. EPA, 1994. Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments-Review Draft. Edison, NJ: Environmental Response Team.

Wentsel, R.S., 1994. Procedural Guidelines for Ecological Risk Assessments at U.S. Army Sites, Vol. I. Aberdeen Proving Ground, Maryland.

U.S. EPA. "ECO-Update" series. Office of Emergency and Remedial Response, Hazardous Site Evaluation Division.

U.S. EPA, March 1989. Risk Assessment Guidance for Superfund Volume II Environmental Evaluation Manual. EPA 540-1-89-001, Office of Solid Waste and Emergency Response, Washington, D.C.

Response: These references provide methods for performing quantitative ecological RAS and involve intensive bioassay, population characterization and site-specific analysis. All of which are considerably beyond the scope of this RFI and normal RFI's which do not impact a large and/or sensitive ecosystem. The qualitative assessment that was performed is considered sufficient to identify the need for a more intensive study of the affected area.

As discussed during our 04/13/95 teleconference, Section 2.5 will be deleted from the report.

12. **Comment**: Section 2.5.2, Page 2-91. The final sentence in that section identifies sensitive indicator species as the target species for the Ecological Risk Assessment Approach. Though this is a conservative approach, it is not totally representative of the ecosystem. Commonly occurring species such as Earthworms, Canada Geese and Whitetail Deer are more representative of the site.

Response: Consideration of a variety of species/trophic levels was not within the scope of the RFI Health and Environmental Assessment. If requested, HNUS can perform this study.

Chapter 3

No specific comments on Chapter 3.

Chapter 4

13. **Comment**: I believe a data gap exists in that no data were collected from the seeps on the face of the landfill. These seeps are direct contaminant inputs into the sediment and surface water at Site 1. These are especially important since we have past visual accounts of substances exiting at the landfill face.

Response: It is HNUS' current understanding that seeps are not present at the landfill. However, HNUS has not specifically searched for them during a rain event. In addition, there is visual evidence of erosion of the fill material at the face. As discussed during our 04/13/95 teleconference, future work at the site could include provisions for identifying and testing seeps, if present.

14. **Comment**: Page 4-71. The first paragraph states "A comparison of inorganic groundwater concentrations to background levels cannot be performed at site 1, as no single monitoring well can be positively identified as a background groundwater sample location." Background concentrations for groundwater must be established. This could be done as part of a Phase II investigation.

Response: HNUS made an attempt to determine background inorganic levels at this site and others. However, the presence of natural pockets of peat and the concern that no single area may truly be unaffected makes this determination difficult. During future site activities, HNUS will propose the inclusion of a series of monitoring wells, perhaps 6 to 12 located in remote area of the site to generate background data.

15. **Comment**: Page 4-84, Second Paragraph. Please explain this sentence: "This detection is a significant result but may be biased high as the sample contained only 13% solids, and the quantitation adjustment made to account for sample moisture content assumes that the supernatant liquid does not contain detectable amounts of the target analyte."

Response: Toluene analysis involves use of a "purge and trap" preparation technique where an inert gas is bubbled through the matrix, stripping volatiles onto a carbon trap. The sentence in question is intended to alert the reader that the sample result is reported on a dry weight basis (for sediment) even though the sample was over 85% water (by

weight). Toluene was also detected in the surface water and the reported result may not all or in part be attributable to the solid matrix.

16. **Comment**: Page 4-109 and 4-110, Selection of Indicator Species. Again, the selection of only one species (though a sensitive species) to measure the effects of contamination is quite limited. Commonly occurring species representing various habitat niches should be examined, providing a weight of evidence approach. Toxicological data are also available for some of these common receptors.

Response: See response to Comment 11. If requested, HNUS can perform this work.

17. **Comment**: Page 4-110, Surface Water. The paragraph states that 4,4'-DDD "may prove deleterious to Tiger Salamander populations in the ecosystem." The text also goes on to state that definitive conclusions regarding this impact cannot be made. Firstly, additional receptors should be considered to formulate a stronger risk characterization. Though the Tiger Salamander is probably the most sensitive species at the site, additional receptors representing the site should be included in the Ecological Risk Assessment when it is completed. These receptors include members of the benthic community, pelagic community, avian receptors and mammalian receptors. Secondly, instead of immediately suggesting that we have a bioaccumulation problem here, it may be wiser to state that our data are not sufficient to establish definitive conclusions regarding this impact. We could further go on to suggest that the risk may be more accurately characterized in a Phase II report.

Response: See response to Comment 11. If requested, HNUS can perform this work.

Chapter 5

18. **Comment**: Page 5-120. The last sentence of the third paragraph states that "Current risk levels do not exceed the upper bound USEPA risk range goal of 10^{-4}, the level commonly used to indicate the necessity for remedial activity." I believe we agreed to remain consistent with Northern Division's past activities and use 10^{-6} as our cancer risk level to indicate the necessity for remedial activity. This was discussed during a conference call

between Halliburton NUS and Northern Division regarding Preliminary Remediation Goals for sites at NWIRP Calverton. This call took place on 16 February 1995.

Response: The statement "the level commonly used to indicate the necessity for remedial activity" will be deleted from this sentence.

Chapter 6

19. **Comment**: Page 6-81. The last sentence on the page states "Under the evaluated scenario, occupational receptors are exposed during routine activity do not experience risk levels greater"...greater than what? The sentence needs to be completed.

Response: Sentence was chopped during editing. The completed version will be provided as the following. "... than the USEPA benchmark risk level."

Chapter 7

20. **Comment**: Page 7-47, Observed Chemical Contaminant Trends. The first sentence states "Although not detected in soil samples, the detected volatile and semivolatile groundwater contaminants can be assumed present in the site soils." We should not make this assumption.

Response: This assumption is based on the presumed site history, i.e. contaminated soils, wastes, and only minor volumes of liquids were disposed at the site. There is no evidence that significant quantities of contaminated water was disposed at the site.

21. **Comment**: Page 7-58. The second paragraph states "Current risk levels do not exceed the upper bound USEPA risk range goal of 10^{-4}." See Comment 1 (18) under Chapter 5.

Response: See response to Comment 18.

General Comment on the Ecological Work

22. **Comment**: NWIRP Calverton, as well as the habitats at each area of concern should be characterized from an ecological perspective. Potential receptors should be identified; and

assessment endpoints should be determined. This may not be appropriate for the tasks of this RFI; however, this will need to be done if it is decided that more ecological work is necessary based upon the review and recommendations of the regulators. If more ecological work is necessary, I request that a meeting be scheduled with the Region II BTAG to scope out those tasks and receive their input in performing those tasks.

Response: As discussed during our teleconference, HNUS proposes to submit the Ecological Risk Evaluation as presented for state and EPA review. If the state and EPA insist on this level of study, then the Navy may want to consider it. However, this study would be very expensive and would likely delay remediation for several years while the studies are being conducted.

Comments from Jim Colter

General comments:

1. **Comment**: Where applicable, please change the spelling of "Northrup" to "Northrop".

   Response: Agreed. However, note the Grumman comments on the RFA. Should HNUS delete reference to Northrop.

2. **Comment**: When talking about the dates for the RFI Field Investigations in the Executive Summary section as well as the Specific Site Sections, delete the reference to the actual day . Only need to reference month and year. See Pages ES-8, ES-13, ES-18, and ES-23. Also see Sections 4.2.3, 5.2.3, 6.2.3 and 7.2.3.

   Response: Agreed.

3. **Comment**: When describing the Drilling and Installation of Permanent Monitoring Wells in the Executive Summary and Site Specific Sections, define the word "cluster" to indicate that both an intermediate and shallow well was installed at that location OR;
   indicate the exact number of shallow and intermediate wells that were installed and mention that at four locations, the wells were installed as a cluster. See pages ES-14, ES-19, ES-23, and Sections 5.2.3, 6.2.3, and 7.2.3.

Response: Agreed. In each section, where the term cluster is first used, the term will be indicated as follows: cluster (shallow- and intermediate-depth)

4. **Comment**: There should not be a comma between "NWIRP" and "Calverton" when referring to the facility. The first time this occurred was on page 2-45 in the 3rd line of the last paragraph. Please check the remainder of the report.

Response: Agreed. A word search will be performed.

5. **Comment**: When discussing the surface and subsurface soil results within each section, try to specify if the concentrations being listed are above or below any standards. This will give the reader an idea whether the results are good news for the Navy or bad news. For example, see Section 4.4.1.2 on page 4-49 and 6.4.1.2 on page 6-37.

Response: The report format presents analytical data followed by an ARAR and toxicity evaluation of the data. This is a typical report formate. The concept presented was used for background concentrations of inorganics in soils and MCLs in groundwater where only a single concentration can be used at a point of comparison. However, standards for many chemical are based on factors such as selecting 10^{-4} or 10^{-6} ECR as a standard, current and future use scenarios (residential or industrial), and a variety of guidance documents. In order to present these guidance ranges at this point in the document would confuse the data presentation.

6. **Comment**: Tables such as those found on pages 4-18 and 6-7 show a lot a blank spaces for chemicals analyzed for but not detected. There should be a way for these tables to reflect what is shown on the corresponding tag maps which only label those chemicals which have been detected. Showing what chemicals were analyzed for is good but maybe the full table would better serve its purpose in an appendix and a condensed version could be used for the Volume I text.

Response: The tables presented in the text are a condensed version of all analytical data. The blanks indicate that the chemical was detected in a specific media, but just not in that sample.

7. **Comment**: For each site-specific section which discusses "Static-Water-Level Measurements" (i.e. page 4-11), please insert at the end of the paragraph, a conclusion which states the groundwater flow direction with a reference to the figure which shows it (i.e. Figure 4-9).

Response: Discussion of page 4-11 presents procedures and activities discussed. Results are discussed later.

8. **Comment**: For each site-specific section which discusses "Groundwater Sampling" (i.e. Page 4-11), please insert a sentence which makes reference to the fact that a second round of groundwater samples for the wet season will be (or has been taken) during March 1995.

Response: The following statement will be added. "A second round of groundwater samples was collected in March 1995, representing a "wet season" sample event. The results of this testing will be presented in an addendum.

9. **Comment**: The amount of various fieldwork programs sometimes differ from what was agreed upon within the workplan. Where this occurs, please insert a statement of explanation, preferably somewhere within the site-specific section such as Section 4.2.3.1, 4.2.3.2, etc. Although the frequency of this occurring is minimal, there are some major differences between what was done and what was planned. Specific examples include:

- Test pits at Site 1 - 18 in Workplan, 28 installed (pages 4-4 and 4-14).
- Temporary wells at Site 2 - 20 in Workplan, 24 installed (pages 5-5 and 5-12).
- Test pits at Site 2 - 7 in Workplan, 42 installed (pages 5-5 and 5-29).
- Soil gas points at Site 6A - 75 in Workplan, 94 installed (pages 6-5 and 6-7).
- Soil borings at Site 6A - 14 in Workplan, 12 installed (pages 6-5 and 6-7).
- Soil gas points at Site 7 - 35 in Workplan, 23 installed (pages 7-3 and 7-4).
- Temporary wells at Site 7 - 15 in Workplan, 12 installed (pages 7-3 and 7-8).

Response: Statements will be added as indicated. These statement will be either "In accordance with the work plan, less samples were needed at this site to characterize the

nature and extent of contamination." or "Additional samples were collected at this site to better define the nature and extent of contamination at this site.".

Specific Comments

10. **Comment**: Page v, Table of Contents Section 7: Please recheck page numbers for sections following 7.2.4. The page numbers seem to be off by 1.

    Response: Agreed.

11. **Comment**: Page ES-1, 2nd paragraph, 5th line: Replace the work "facility" with "Hazardous and Solid Waste Amendments (HSWA)".

    Response: Agreed.

12. **Comment**: Page ES-7, 3rd paragraph, last line: Delete the word "purposefully".

    Response: Agreed

13. **Comment**: Page ES-11, 1st line of last bullet before Recommendations: Add the word "water" after the word "surface".

    Response: Agreed.

14. **Comment**: Page ES-12, 1st bullet, 2nd line: Add the word "water" after the word "surface".

    Response: Agreed.

15. **Comment**: Page ES-12, 1st paragraph of Site 2: In the 4th line, add the word "is" after "facility". Add the statement "and has since been removed" to the end of the paragraph. Also, in the 1st paragraph, verify that the aboveground storage tank is actually 75 feet from the training ring. It doesn't seem to be that far away.

Response: Agreed. The text will be revised to read 65 feet.

16. **Comment**: Page ES-13: Delete the entire paragraph titled Previous Investigations. This paragraph does not add anything of significance to the Executive Summary.

Response: Agreed.

17. **Comment**: Page ES-13, Last line of Data Gaps: Verify that a portion of the work at Site 2 included assessing the extent of soil contamination because of spraying groundwater to the surface. This reportedly occurred in the woods north of the site and I don't recall any sampling being planned in that area. If this was not a focus of the work at Site 2, then delete the statement.

Response: This work was part of the study. Based on the absence of contamination in temporary monitoring wells and soil gas testing in the area, it was concluded that the spray irrigation did not impact this area.

18. **Comment**: Page ES-14, 1st bullet, 2nd line, 1st sentence: Make the word "pit" plural.

Response: Agreed.

19. **Comment**: Page ES-14, last bullet, 1st line: Change the word "determine" to "determination".

Response: Agreed.

20. **Comment**: Page ES-15, 1st bullet, 2nd line: Change the line to read "fire training ring being the most likely source area.".

Response: Agreed.

21. **Comment**: Page ES-15, 2nd bullet, 3rd line: If possible, add a "degree" symbol when discussing the flashpoint.

Response: Agreed.

22. **Comment**: Page ES-17, 3rd paragraph under Site 6A, 3rd line: Change the word "waste" to "wastewater".

Response: Agreed.

23. **Comment**: Page ES-18, 2nd paragraph, last line: Replace the period after the word "small" with a comma.

Response: Agreed.

24. **Comment**: Page ES-18, 2nd paragraph, last line: Replace the period after the word "small" with a comma.

Response: Agreed.

25. **Comment**: Page ES-19, last bullet, 1st line: Change the word "determine" to "determination".

Response: Agreed.

26. **Comment**: Page ES-21, bullet before Recommendations: If direct contact with the soils will pose adverse risks to future residents, wouldn't on site workers also be at risk due to direct contact?

Response: Not necessarily, because of different exposure pathways and durations.

27. **Comment**: Page ES-21, 2nd bullet after Recommendations: Since the paint shop and current fuel calibration areas are both considered to be "Current Operations", they may not qualify for a Phase 2 investigation under the IR Program. Since it is a valid recommendation, the report should state the above constraint and also mention that these areas will be looked at under the Environmental Baseline Survey (EBS) Program.

Response: Agreed.

28. **Comment**: Page ES-22: Delete the entire paragraph titled Previous Investigations. This paragraph does not add anything of significance to the Executive Summary.

Response: Agreed.

29. **Comment**: Page 1-1, 2nd paragraph, 8th line: Refer to Stage 4 as "Corrective Action".

Response: Agreed.

30. **Comment**: Page 1-4, Section 1.3: Please rewrite 1st paragraph to read, "NWIRP Calverton is known as a Government-Owned, Contractor-operated (GOCO) facility. It has been owned by the United States Navy since the early 1950's at which time the land was purchased from a number of private owners. The facility was expanded in 1958 through additional purchases of privately-owned land. The Northrop Grumman Corporation (previously Grumman Corporation) leases the land and has been the sole operator of the facility since its construction (Navy, 1986)."

2nd paragraph should read, "The Calverton facility was constructed in the early 1950's for use in the ... Naval combat aircraft. The facility supports aircraft design and production at Northrop Grumman's Bethpage Facility which is located in Nassau County, New York."

3rd paragraph: The last two sentences should be rewritten to include a host of other operations which resulted in hazardous waste generation, including but not limited to "other maintenance operations, temporary storage of hazardous waste, fueling operations, various training operations, etc.

Response: Agreed. Should Northrop be referenced as per previous Grumman comments?

31. **Comment**: Page 1-5, Section 1.4: Move the first sentence of that section to the beginning of Section 1.6. Move the last sentence of that section regarding the RFA to the

end of Section 1.6. Delete the remainder of Section 1.4 and renumber the subsequent sections.

Response: Agreed.

32. **Comment**: Page 1-5, 1st paragraph under Section 1.5: Change the last word in this paragraph from "required" to "recommended".

Response: Agreed.

33. **Comment**: Page 1-7, 1st paragraph: In the 2nd line, make the word "material" plural. Also, rewrite the 3rd sentence to read "The fire training area (Site 2), the fuel calibration area (Site 6A), and the fuel depot area (Site 7) are sites where documented or suspected spills or leaks have occurred.".

Response: Agreed.

34. **Comment**: Page 1-8, Section 1.6: Change the title of the section to "DESCRIPTION OF PROJECT SITES". Delete the first section which defines the four sites to be investigated and add the appropriate changes from Section 1.4.

Response: Agreed.

35. **Comment**: Page 1-8, Section 1.6.2, 1st sentence: Delete the word "described" and end the sentence after the word "sites". Delete the remainder of the sentence which defines the four sites.

Response: Agreed.

36. **Comment**: Page 1-9, Site 1, 3rd line: Rewrite sentence to read "Groundwater was not investigated as part of the SI".

Response: Agreed.

37. **Comment**: Page 1-9, Site 2: Refer to specific comment #8 (#17) above.

Response: Agreed.

38. **Comment**: Page 1-12, 2nd paragraph: In the first sentence, delete the names of the metals and replace with "various inorganic elements.". Also, in the 3rd line, use a different term than "*outlier*".

3rd paragraph: In the second line, use a different term than "anthropogenic".

4th paragraph: Delete the word "then" in the first sentence.

Response: Agreed.

39. **Comment**: Page 1-13, Table 1-1: There are two references for Calcium. I believe one should be Cadmium.

Response: Agreed.

40. **Comment**: Page 2-29, 1st paragraph: The last sentence in this paragraph seems confusing when read. Please try and rewrite.

Response: Sentence will be deleted.

41. **Comment**: Page 2-92, Table 2-15: I don't recall seeing the acronym "AWQC" previously defined within the text. If not, then another footnote needs to be added to the bottom of the table which defines it. Perhaps doing both would be appropriate.

Response: Agreed.

42. **Comment**: Page 3-1, Section 3.1, 2nd paragraph: If possible, add a "degree" symbol when referring to temperatures.

Response: Agreed.

43. **Comment**: Page 4-16, Table 4-4 and Page 4-51, Figure 4-12: Please explain the use of the letters "ST" when referring to the test pit samples at the Northeast Pond Area.

Response: Agreed. ST will be footnoted indicating that ST refers to test pit samples.

44. **Comment**: Page 4-26, Figure 4-8: Move the Title block over to the left and move the Legend down to get it out of the figure.

Response: Agreed.

45. **Comment**: Page 4-54, 2nd paragraph: In the first line, change the word "then" to "than". After the last sentence, add a reference to "TP 22" as the approximate location of the buried drum.

Response: Agreed.

46. **Comment**: Page 4-59, lines at top of page: In the 2nd line, it is mentioned that the T-test could not be used. However, the last line of that paragraph indicates that the concentrations appear to be above natural levels when compared to background. How can this statement be made if the T-test was not used to determine a background level?

Response: The statement is accurate. It is apparent that these levels are an order of magnitude or greater above background. The conservative approach dictates these analytes be retained for further consideration.

47. **Comment**: Page 4-59, last paragraph: By reading the last two sentences, it would appear that sample NP-WST22-0002 should be classified as a hazardous waste (concentration > 5 mg/l). If so, then the first sentence in this paragraph needs to be rewritten to avoid confusion.

Response: Agreed.

48. **Comment**: Page 4-65, Table 4-13: The last 4 parameters do not show up on page 4-62 for surface soil sample 4 and test pit sample ST02-0405. Was this an oversight or is there a reason?

Response: The data is presented in the Appendix and will be added to the table.

49. **Comment**: Page 4-66, 2nd paragraph: In the 3rd line, delete the term "organic" since it seems to have been used twice.

3rd paragraph: In the third line, change the "S" in PCBS to lower case. Also, check the remainder of the report for similar corrections.

Response: Agreed.

50. **Comment**: Page 4-109, paragraph before Section 4.7: This paragraph concludes that the Northeast Pond Area poses an unacceptable risk to humans under a hypothetical residential future use. However, the last sentence says that the site poses an insignificant threat to current onsite workers and recreational users. Is this difference due to the use of the site or because of different pathways that are assumed?

Response: Both.

51. **Comment**: Page 4-111, Table 4-28: Add another footnote to the table defining the acronym "AWQC".

Response: Agreed.

52. **Comment**: Page 4-115, 2nd paragraph: Not sure of the relevance of this paragraph. It seems that it could be slimmed down and incorporated into the paragraph above it.

Response: Agreed.

53. **Comment**: Page 5-6, Section 5.2.3.1: If you add up the soil gas points that are mentioned in the 1st paragraph, the total is 56 points. This differs from the 63 points that

are said to have been installed on Page 5-5. There seems to be 7 missing. Please explain.

Response: The number do add up to 63.

54. **Comment**: Page 5-103, Section 5.6.3: Delete the extra double space that occurs within this paragraph.

Response: Agreed.

55. **Comment**: Page 6-81, last paragraph: In the last line, insert the word "that" after "occupational receptors". Also, the last sentence needs to be completed. The end does not appear on the following page.

Response: Agreed.

56. **Comment**: Page 6-84, 1st bullet: It is not mentioned whether the results presented within this bullet are above any regulatory standards. Please insert some reference to give the reader an idea whether these results are good or bad for the Navy (see how 2nd bullet is written).

3rd bullet: I don't see any reference to iron or manganese when talking about groundwater. Wasn't NYSDEC concerned about these two inorganics when we tried to get an interim discharge permit for a pump test at Site 6A?

Response: See response to Comment 5.

57. **Comment**: Page 6-85, 1st bullet: Why should we further investigate the horizontal direction at the paint shop and current fuel calibration area if we say that horizontal contamination beyond what we already have found is not expected due to the low hydraulic gradient? Also, if this really is a data gap, what do we hope to gain by addressing it?

The word "mostly" seems to be the confusing factor. Either more work is warranted or we have enough information to move to the next step. Please try to clarify what this paragraph is intended to mean. Since a similar recommendation appears in the other sections, take a look at them as well and rewrite if necessary. Generally, it may help to omit the last sentence within that bullet and to also omit it where it appears in the other sections.

Response: The comments referenced are based on the old fuel calibration pad as being the release point and characterization of contaminated groundwater associated with it. The Navy needs to provide us with guidance on how to handle upgradient and contamination likely associated with current Grumman operations.

58. **Comment**: Page 7-30, last paragraph: In the 5th line, change the "S" in PAHS to the lower case.

Response: Agreed.

Comments from Jack Dunleavy

1. **Comment**: Page ES-3 - In the description of the investigative process for site 1 it is stated that the site was investigated to fully delineate the nature and extent of soils, sediments and "groundwater". This was not the case for groundwater. As stated later in this section, for groundwater, the intention was to determine if there has been an impact.

Response: A stated objective of the RFI Work Plan was to fully delineate the extent of all contaminated media investigated. As discussed during the scoping of the RFI, for Site 1, there was an assumption that groundwater had not been impacted.

As a result, the stated objective will be revised to state "to fully delineate the nature and extent of soil contamination, and to determine if there has been an impact to groundwater, surface water, or sediment."

2. **Comment**: The executive summary should discuss the anonymous reports of buried drums at site 2.

Response: A statement will be added to the executive summary that buried drums were reported to have been buried at Site 2.

3. **Comment**: The conclusions in the executive summary need to be changed based on comments in this review. Rather than suggesting these changes now, and since these conclusions are repeated verbatim in subsequent sections of the report, they will be presented during the course of this review.

Response: Agreed.

4. **Comment**: Page 1-12 - Section 1.7.2 - This section states that "All data were used in the evaluation except one outlier reported for mercury" but that the levels for lead, although appearing high, were used. Why? Such use of data is not consistent. Either location SB-16 represents background or it does not. It is not appropriate to say that the location is representative of background for one compound but not another. If it was agreed (with the Navy and State and Federal regulators) that SB-16 was indeed an acceptable background location, then all data including the mercury "outlier" should be used in the statistical analysis.

Response: The relative difference between the mercury and lead results in question is about 10X(mercury) and 5X(lead) for comparison to other data. Atmospheric deposition of lead is well documented, and a similar process for Hg is not identified. It was a judgment call and HNUS does not consider this approach to be inconsistent.

Based on our 04/13/95 teleconference, no changes will be made to the report.

5. **Comment**: Page 1-12 - Section 1.7.2 - The third paragraph states that "Since several naturally occurring inorganics were detected in background samples, it is necessary to differentiate inorganic concentrations attributable to anthropogenic sources (namely NWIRP Calverton) from those present in background." Although this is not technically incorrect, it is not consistent with other background investigations completed by the Navy. The term "anthropogenic" (of or relating to man or man-made) should not necessarily refer to Navy sites such as NWIRP Calverton. Instead, it typically refers to non-Navy but man-made sources. One example is lead found in soil due to atmospheric deposition. The

amount of lead found in soils can be elevated due to this source and not be (Navy) site related. Therefore, it is more appropriate to say "it is necessary to differentiate inorganic concentrations attributable to Navy sources (such as NWIRP Calverton) to anthropogenic (background) sources.

Response: The t-test can account for such variance; waste disposal is a local phenomenon while atmospheric deposition of lead is widespread and common.

Based on our 04/13/95 teleconference, the term "anthropogenic" will be replaced with "Navy".

6. **Comment**: Page 1-12 - Section 1.7.2 - Where are the positive detections of Cadmium and Sodium? Also, the terms in the equation presented on this page should be explained (as done on Page 2-47 for a similar equation).

Response: Cadmium was not detected. Sodium is on the next page. The terms will be defined.

7. **Comment**: Page 1-12 - Section 1.7.2 - With respect to the statistical comparison of background samples to site samples: Is the assumption that the variance of both populations valid? One would think just the opposite since one population is relatively clean and the other "contaminated". Please provide the Navy with copies of applicable pages from the statistical Reference (Snedecor and Cochran, 1980). Also, Table 1-1 does not show the critical "t" values as stated in the text.

Response: The use of the t-test is identified in the RCRA regulations (40CFR 264 Appendix IV). Other tests are available, including the F-test and W-test. These results will also be included in the Appendix. However, based on a preliminary review of the data, there are no significant differences in conclusions.

Based on our 04/13/95 teleconference, a copy of the tables were faxed to the Navy.

8. **Comment**: Page 1-13 - Table 1-1 - Calcium appears twice in this table. It looks like one entry should be Cadmium.

Response: Agreed.

9. **Comment**: Page 1-15 states that any positive detection of Silver would be an indication of contamination. This is incorrect and should be deleted.

Response: Since no positive results for silver are found in the background data, detections of this metal in environmental samples are conservatively assumed to be attributable to environmental contamination. If the Navy wants to consider alternative methods to define background silver levels, HNUS can perform this activity.

Based on our 04/13/95 teleconference, the term "would" would be replaced with "could" to address this comment.

10. **Comment**: Page 2-4 - Table 2-1 - State what chlorinated VOCs were selected (Table 2-3 also).

Response: A reference to Appendix N will be provided for these Tables.

11. **Comment**: Page 2-10 - What was the fate of the well development water? It should be stated in this section.

Response: The following statement will be added to the text. "Well development water was containerized and the majority of it treated with activated carbon prior to discharge to the ground surface. In accordance with the work plan and after review of the available analytical data, some of the collected development water was discharged directly to the ground."

12. **Comment**: Page 2-11 Section 2.1.1.6 - The text describes the rising head test as inserting the slug and measuring the rate of decline in water level. This is the description of a falling head test. The terminology of rising head and falling head is reversed throughout the report.

Response: Agreed. The text will be checked and corrected as necessary.

13. **Comment**: Page 2-13 - Section 2.1.1.6 - Discuss and present the results of the "test run" of the carbon filtration system. Provide a sketch of what the final version of the system looked like and describe why a modification was necessary.

Response: As discussed in our 04/13/95 teleconference, the letter report summarizing the test run will be added to one of the appendices, and referenced in a section.

14. **Comment**: Page 2-19 - Section 2.1.2.4 - Was a map generated as a result of the survey? Please include a full size (E size) drawing of the facility.

Response: This map could be included in the RFI report if requested. However, a fairly extensive level of effort would be required. Please note that HNUS has been developing a map similar to that requested, but only for the areas investigated. Grumman maps used to date have been found to contain significant vertical and horizontal distortions which would make completing this effort difficult.

As discussed during our 04/13/95 teleconference, a copy of this map on disk will be provided to you.

15. **Comment**: Page 2-19 and 2-20 - Not all of the well development water and decon fluids were sent through the carbon system as described in the text.

Response: *See response to comment 11.*

Please note that during the second round of groundwater sampling, additional waters were collected. These waters will need to be addressed during upcoming activities.

16. **Comment**: Page 2-22 - Under "Equipment Decontamination", sampling equipment is described as being decontaminated before, during and after sampling activities. Please correct.

Response: The term "during" will be replaced with "between individual samples,"

17. **Comment**: Page 2-28 - Section 2.2.1 - This section states that an example calculation of the t test using the northeast pond surface soil data for aluminum is displayed in appendix L. Appendix L contains the calculation of the t-statistic but the comparison to the critical "t" value is missing. What are the critical "t" values and how were they determined? Where are the statistical analyses for all other inorganics?

Response: Appendix L will be amended to show the comparison of the critical t value.

18. **Comment**: Table A-2 is missing from Appendix L.

Response: The table will be inserted into Appendix L as Table L-4.

19. Page 2-28 - Section 2.2.1 - The formula for the t-statistic is slightly different from the one initially presented in section 1.

Response: The formula in Section 1 was the correct formula. The formula in Section 2.2.1 will be amended to reflect the formula in Section 1.

20. **Comment**: Page 2-29 - Section 2.2.2 - The last sentence of the first paragraph is confusing, please rewrite. Also, in the third paragraph, discuss the possibility of contaminants migrating through the sand pack (This is discussed in the conclusions section).

Response: The sentence is not needed and will be eliminated.

21. **Comment**: Sections 2.2.2 through 2.2.5 - These sections discuss specific findings and presents conclusions for each of the sites. Why is this information presented at this point in the report? No site specific data - background information, analytical results have been presented as of yet.

Response: The approach used is based on Navy's comments during the RFI scoping meeting in which it was agreed to minimize redundancies. HNUS can incorporate this comment, however considerable effort would be required. Also, this section would then be repeated for each Site.

22. **Comment**: Page 2-31 - Section 2.2.5 - Discuss the major analytical problems noted in the text.

Response: A brief discussion of the analytical problem which resulted in the data rejection (high CRDL standard recovery) will be included.

23. **Comment**: Page 2-33 - Are the units for the Henry's law constants correct? These constants are usually expressed in Atmospheres.

Response: The Henry's Law data are expressed in the correct units.

24. **Comment**: Page 2-47 - The "H" statistic is shown to be obtained from "the table published in Gilbert, 1987". Please include this table in the report.

Response: This table will be included.

25. **Comment**: Page 2-49 - Section 2.4.2.1.1 - Discuss the sources that were used to determine the RFDs and cancer slope factors.

Response: References will be included in the table to identify sources of tox data.

26. **Comment**: Page 2-52 - Table 2-11 - Do blank entries mean that the data is not available?

Response: This is correct. A note will be included in the table.

27. **Comment**: Page 2-64 - In the calculation of the sediment standards, where does the equilibrium partitioning coefficient come from? Is it chemical specific? Where are the actual calculations for determining the sediment criteria? Is there precedence for using AWQC to obtain a sediment standard? The national Oceanographic and Atmospheric Administration has screening values for sediments that are based on research. Was consideration given to using these standards? Incidentally, the NOAA sediment levels are discussed and presented later on in section 2.5.3 but they are never used for comparison purposes in the report.

Response: The sediment standards for protection of Human Health are derived as per Section 2.4.3.3. Partitioning coefficients are presented in Table 2-10. Sample calculations will be appended. There is no precedence for using the AWQC in this manner for identifying sediment standards, but the approach is consistent with the intended use of the data.

The NOAA Sediment Standards are ecologically based and are used in the ecological assessment section.

28. **Comment**: Page 2-77 - Section 2.4.3.3 - How is pica and mouthing considered in a risk assessment? Also, in the fourth paragraph of this section it is stated that soil and sediment exposure is assumed to occur concurrently only during recreational activity. Please note that Calverton is a secure facility and this type of exposure would only be a future scenario.

Response: Pica and other abnormal behavior is not accounted in the exposure assessment. The reference will be removed.

29. **Comment**: Page 2-78 - Section 2.4.3.4 - This section is very good, however the following values are missing from table 2-14: PC (chemical specific permeability), IR (ingestion rate for soils) and EF (exposure frequency for groundwater).

Response: Missing inputs will be included in Table 2-14. Chemical-specific PC values will be included in Table 2-11 and discussed as a newly inserted Section 2.4.2.1.5.

30. **Comment**: Page 2-90 - Section 2.4.6 - It is stated that "included in this section will be a table which summarizes risk for all receptors". The table does not appear it section 2; risk numbers are all in the site specific sections.

Response: "Included in this section" will be replaced with "included in each site-specific section".

31. **Comment**: Page 2-94 - Section 2.6.1 - The description of a field blank and a rinsate blank are reversed. Also, in many cases for this project the trip blanks were actually

prepared by the field crew. This is not normally the case and should be documented in the report.

Response: This comment is correct and the text will be modified to correct this error.

32. **Comment**: Page 2-94 - Section 2.6.1 - Tap water was used for blank preparation. Why? Revise section 2.6.1 to make this fact clearer to the reader. As written, this is only mentioned in a parenthetical statement. Were data validators aware that tap water was used in the blanks?

Response: Tap water was collected as a field blank in accordance with Navy requirements, since this water was used for the decontamination of the drillers augers. Data validators were aware of the sources.

33. **Comment**: Page 2-106 - Section 2.6.5 - This section mentions that rejected data was used only when the rejection was due to matrix spikes exceeding the upper control limit. These rejected but "used" results are then biased high. For what samples/sites did this happen? Review of site specific results later on in this report did not find a discussion about this. Was this taken into account during evaluation of the data?

Response: The use of rejected data was briefly discussed as relevant in each section. Most of the rejections were for lead results at Sites 6A and 7. This data was identified as rejected because the data reported may be biased high. Since most of the results were background levels or MCLs, the use of biased data was considered to be conservative. Additional discussion of data validation actions for specific sample analyses could be added, however, these discussion would be cumbersome and detract from the discussion of the nature and extent of contamination. Full details about data quality and actions are provided in the data validation memoranda in Appendix K.

34. **Comment**: Page 4-1 - Section 4.1 - The third paragraph should also mention that debris is also visible along the embankment near the water. Why does the last paragraph of this section state that no exposed waste was observed here during a site inspection?

Response: As indicated during our 04/13/95 teleconference, a reference to debris will be added.

35. **Comment**: Page 4-3 - Section 4.2.1 - State that the NE Pond disposal area can be "described" as a landfill rather than "classified" as a landfill.

Response: Agreed.

36. **Comment**: Page 4-3 - Section 4.2.2 - Our intent was not to fully delineate groundwater contamination, only to confirm/deny it.

Response: The intent was to fully delineate groundwater contamination. The program developed assumed that groundwater contamination was not present at this site.

37. **Comment**: Page 4-13 - Section 4.2.3.3 - The descriptions of a falling head and rising head test are reversed. The results of the slug tests are missing from appendix F. The natural log symbol is missing from the equations.

Response: Agreed. Report will be modified as requested.

38. **Comment**: Page 4-14 - Section 4.2.3.4 - Test pits were installed to delineate the nature and extent of the fill material. What is it? Nowhere in the report is there a volume estimate for the landfill. Did any test pits encounter native soil?

Response: Volume estimates of fill (as well as soil, sediment, and groundwater contaminants) are typically performed in the CMS, once remedial objectives and goals are established. Test pits encountered native soil along the edges. Soil borings encountered native soil along the face of the fill.

The following will be added to the report. "The estimated areal extent of fill material is 70,000 SF. At an average depth of approximately 8.3 feet, the estimated volume of contaminated fill is 21,000 CY."

39. **Comment**: Page 4-28 - Section 4.4.1 - This section states that discussion is limited to those metals which statistically exceed background data sets "as determined by the T-test". Where are these calculations? They could not be found in appendix J or K.

Response: These calculations will be submitted in the Appendix.

40. **Comment**: Page 4-28 - Top of page - The calculations for the slug tests are not in Appendix F as stated in the text.

Response: Calculations will be added as requested.

41. **Comment**: Page 4-29 - Table 4-8 - When data is flagged with a "J" meaning that it is estimated, the table should have a footnote that describes why that piece of data is flagged with a "J". This is especially true for this report since over 95% of the data is estimated. Note: This does not require a great deal of effort because these determinations were already made during data validation. In fact, most of the data validation reports already use such a footnote system.

Response: HNUS disagrees. Data is estimated for a variety of reasons. Numerous footnotes would be required. These footnotes would not add much to the report and the interested reader has only to refer to the validation letters provided in the appendices. This actions would require extensive efforts and would detract from presentation of relevant data.

42. **Comment**: Page 4-29 - Table 4-8 - And throughout the report - The detection of Fluoranthene at .027 ppb is lower than the detection limit. Throughout the report there are dozens of instances where results are reported below the detection limit. By definition, a compound cannot be detected below the detection limit. Either the detection limits are wrong or the reported results are wrong. Please explain. Also, please provide the Navy with some documentation originating from the laboratory that will verify what analytical methods were used.

Response: HNUS disagrees. The detection limits provided by the laboratory are based on a statistical detection limit study performed by the lab using the analytical method on

one instrument or literature value. Detection limits will vary on different instruments, and the lab provides them with this understanding. MDLs are presented to elucidate the fact that instruments are capable of detecting chemicals at concentrations below the quantitation limit. Laboratories do not normally report results less than a MDL, with the except of the pesticide fraction for which they will report any observed level.

This issue was discussed with the Navy when the presentation of MDLs, as opposed to CRQL/CRDL were first requested by the Navy. The Navy elected not to perform MDL studies for each project and group of samples, but rather use MDLs developed by the laboratory for other requirements.

43. **Comment**: Table 4-8 - And throughout the report - If an analyte is not detected at concentrations greater than background it apparently is not included in the table. This is not desirable. Table 4-8, which is the initial presentation of site data should include all detections even if they are below or equal to background. The fact that they are below background and not a contaminant of concern should be pointed out after initial presentation of the data. Also, as pointed out in previous comments, the demonstration or statistical analysis that "proves" that a compound is above or below background is nowhere to be found. Therefore, a reader or reviewer of the report has no way of verifying that a certain compound exceeds background.

Response: The section is called Nature and Extent of Contamination. Discussion of naturally occurring chemicals is not typically presented in this section to allow a focus on relevant data. Complete analytical results are presented in the Appendices.

44. **Comment**: Page 4-42 - Table 4-8 - What is the problem with sample NP-ST24-0405 and the associated duplicate? Every result is reported as "Sample not analyzed for this parameter".

Response: As indicated on page 4-16, this sample was analyzed for only engineering parameters. Results for this sample are presented in Tables 4-10 and 4-13. The sample was presented in Table 4-8 for completeness.

45. **Comment**: Page 4-48 - Section 4.4.1.1 - This section discusses the detection of compounds below the method detection limit and states that the results are valid. By definition, a compound cannot be detected below the method detection limit.

Response: See response to Comment 42.

46. **Comment**: Page 4-48 - Section 4.4.1.1 - This section states that the t-test shows only cadmium and chromium are above background at site 1. While this reviewer is sure that these calculations were done, they are not shown in the report.

Response: Summary reports for statistical analysis will be provided.

47. **Comment**: Page 4-49 - Section 4.4.1.2 - Paragraphs 2 and 3 discuss maximum detections of compounds but do not point out that most, if not all, of these detections are below regulatory limits. On page 4-52 state that all the PCB detections are below the generally acceptable industrial clean-up standard of 10 ppm and that only one of the PCB detections was above residential clean-up standards (1 ppm). The SVOC detections should also be put into perspective for the reader.

Response: As discussed during our 04/13/95 teleconference, the following statement will be added to the introductory paragraph for each Nature and Extent section: "The presented data is then compared to health-based and regulatory criteria in the Baseline Risk Assessment Section.

In addition, for PCB in soils and groundwater results, the following statements will be added. "PCB standards for industrial- and residential-use of sites are 10 mg/kg and 1 mg/kg, respectively." and "The New York State standard for most VOCs in groundwater is 5 ug/l.

48. **Comment**: Page 4-54 - Section 4.4.1.3 - In the second paragraph, state that the drum is to be removed under a removal action.

Response: Agreed.

49. **Comment**: Page 4-66 - Section 4.4.2 - This section discusses detection of compounds below the method detection limit, which is an impossibility.

Response: See response to Comment 42.

50. **Comment**: Page 4-71 - Section 4.4.2 - This section concludes with the statement that groundwater is being impacted with pesticide and PCB contamination. The conclusions section in the executive summary and at the end of section 4 discuss another possibility. Why is this second possibility not mentioned in section 4.4.2?

Response: Discrepancies between the conclusions and the ES will be resolved.

51. **Comment**: Page 4-78 - Table 4-18 - What is the purpose of sample NP-SD05--0005DU? All results are reported as "NA".

Response: This sample was a duplicate sample collected and analyzed for physical parameters only. No positive results were reported in either duplicate sample for these parameters.

52. **Comment**: Page 4-84 - Section 4.4.4 and Table 4-18 - This section includes more discussion of compounds being detected below the detection limits. Please correct.

Response: See response to Comment 42.

53. **Comment**: Page 4-93 - Table 4-20 - What is the "representative Concentration"? Is it the 95 percent upper confidence limit of the mean? Where are the calculations that arrive at these numbers? Was subsurface data used in the calculation of the representative concentration? (data below 2 feet is not supposed to be used in a risk assessment).

Response: Discussion of the calculation of the RC is presented in Section 2.4.1.3. Sample calculations are provided in Appendix L. Printouts of the statistical evaluation will be provided in the addendum.

54. **Comment**: Appendix I - The risk assessment calculations for surface water and sediments are missing.

Response: As discussed during our 04/13/95 teleconference, risk assessment results will be provided in the appendices. However, example calculations will not be provided, since they are identical to the soil and groundwater pathway.

55. **Comment**: Page 4-105 - It may be more beneficial to the Navy if the NOAA sediment standards were used instead of the "home made" standards base on AWQCs.

Response: The "homemade" sediment standards are for protection of human health. The NOAA standards are for ecological receptors and are used in the Ecological Risk Assessment.

56. **Comment**: Page 4-106 - Table 4-27 - There appears to be mistakes on this table. The maximum detections for Toluene and Phenol exceed the sediment standard but the table shows no exceedences for these compounds. Conversely, the maximum detections for Fluroanthene, Pyrene and Benzo(a)anthracene are all below the sediment standards yet they are listed as having exceeded the standard.

Response: Corrections will be made for the chemicals in question. The other tables will be checked for similar errors.

57. **Comment**: Page 4-109 - Section 4.6.6 - Include the last two sentences at the bottom of page 2-87 (or equivalent) in this section and in the conclusion sections of the subsequent risk assessment sections.

Response: Agreed.

58. **Comment**: Page 4-110 - The last sentence states that definitive conclusions cannot be made because details on a certain study are not available. Are these details permanently lost? Perhaps it would be wise to find the details of this study and make a more definitive statement with respect to the detection of the 4,4-DDD. If this particular study cannot be located other resources should be consulted.

Response: The NYSDEHC value which is available for DDD (the only chemical in question) in surface water references an EPA criterion. The extent and identity of impacts associated with this chemical cannot be determined as the referenced document does not provide the study details, only a standard.

59. **Comment**: General comment - The conclusion sections of the report has a tendency to overstate the magnitude of the findings of the RFI.

Response: Modifications to specific conclusion statements are discussed below.

60. **Comment**: Page 4-116 - Section 4.8 - First conclusion - Change "toxic metals" to "metals". Make this change throughout the report. Also it was not fill material that was classified as toxic by the TCLP procedure it was a sample of waste taken from a drum that was ruptured during excavation. It is also not appropriate to list the single, worst case sample (in this case a waste sample) and present it as an overall site-wide conclusion.

Response: The term "toxic" will be deleted.

The sample results described in the conclusion section are from fill material and soils, not the drum as stated.

As discussed during our 04/13/95 teleconference, the statement that contamination was found in "a portion of the landfill area" will be added.

61. **Comment**: In the second conclusion, state that the levels of PCBs and pesticides are generally below TAGM levels and industrial clean-up standards.

Response: Standards will be presented and discussed in the referenced conclusion.

62. **Comment**: In the third conclusion, it is stated that the sample is "believed" to consist of soils mixed with the contents of a buried drum. The Navy was under the impression that this sample definitely consisted of soils mixed with the contents of a buried drum. Are we not sure about this?

Response: The statement "is believed to" will be deleted.

63. **Comment**: The fourth conclusion is good but it is based solely on exceedances of the sediment standard (is it really a NYSDEC standard as stated?). Before making such a definitive conclusion, it might be a good idea to look at another standard such as the NOAA standard. Also, where some of our detections are close to the standards we need to consider that virtually all of the data is estimated data. It does not appear that the bias of the estimation was taken into consideration when evaluating the data.

Response: NYSDEHC Sediment Standards and the NOAA values are nearly identical. The only difference being the NYSDEHC standards also incorporate screening concentrations published by the Ministry of Ontario.

The use of estimated data is not inconsistent with current data usability guidance from the EPA. Presenting additional uncertainty which may be associated with the data can only detract from the assessment. In addition, presenting a bias, except when conservative is difficult to support.

64. **Comment**: The fifth conclusion at the top of page 4-117 is interesting. It basically says that the results of the groundwater investigation are not conclusive. Is there any particular reason (other than the distribution of the contaminants) to believe that fill intrusion through the sand pack has occurred? Is there any way to test this theory?

Response: The discussion of soil/fill intrusion has been a common argument between EPA and PRPs for a period of time, and in particular for inorganics. For inorganics and in some cases organics, a low flow sampling technique has been developed to reduce/eliminate this concern. Low flow sampling could be conducted at the site.

65. **Comment**: The seventh conclusion states that the extent of contaminated fill was adequately defined. What is it? The report should give the volume of the landfill as well as the aerial extent of the landfill.

Response: As discussed during our 04/13/95 teleconference, the following will be added to the report. "The estimated areal extent of fill material is 70,000 SF. At an average

depth of approximately 8.3 feet, the estimated volume of contaminated fill is 21,000 CY.

66. **Comment**: The ninth conclusion is really a continuation of conclusion number 4 which may need to be changed based on some of the Navy comments. Also, is it accurate to use the phrase "widespread sediment contamination"? Page 4-105 says the following about the sediments at site 1: "these exceedences do not necessarily indicate an unacceptable situation". The conclusion, as written, sounds rather ominous.

Response: The conclusion will be reworded to state "Pesticides were detected throughout the pond sediments." "Widespread sediment contamination" will be deleted.

67. **Comment**: Page 5-3 - Section 5.1 - The bottom of the page states that the reports of buried drums are unconfirmed. Please note that the reports about buried drums were anonymous and made known to the Navy via the Suffolk County Department of Health. The reports may be unsubstantiated, but they are not unconfirmed.

Response: The term "unsubstantiated" will replace "unconfirmed".

68. **Comment**: Page 5-6 - Section 5.2.3.1 - First sentence - Soil and groundwater contamination at the fire training area is no longer "potential"

Response: The term "potential" will be deleted.

69. **Comment**: Page 5-8 - Section 5.2.3.2 - A portion of the main survey area was inaccessible to geophysical measurements. Show this area on the map. Show what test pits were completed in this same area. Although the report states that the results of the geophysical survey can be found in an appendix, it would be appropriate to have a brief summary of the results in this section.

Response: The area inaccessible to the GPR will be illustrated on Figure 5-3. Test pits are presented on Figure 5-7. Text on Page 5-29 (under test pits) briefly discusses the results of the GPR survey.

70. **Comment**: Page 5-25 - Section 5.2.3.6 - The equation for hydraulic conductivity uses small "r" for the radius of the well casing and capital "R" for the radius of the well screen. In the calculation, two different values are used for these variables. Why is this? Is not the radius of the well casing equal to the radius of the well screen? The report should also show how T_o was determined (the time it takes for the water level to rise or fall to 37% of the initial change). This comment also applies to section 4 of the report.

Response: The description of R of will be modified as follows: "R is the effective radius of the well screen (including sand pack), in feet."

Calculations will be provided in Appendix F.

71. **Comment**: Page 5-25 - Section 5.2.3.6 - "L" is explained to be the height of the column of water in the well screen. Shouldn't it be the height of the column of water above the well screen? In either case, this does not account for the value of 56.76 used on page 5-27.

Response: Please see data presented in Table 5-3.

72. **Comment**: Page 5-28 - Section 5.2.3.6 - The calculated values for vertical and horizontal hydraulic conductivity, storativity, and transmissivity should be shown in the report. Also, the report should contain a brief qualitative discussion on what these aquifer characteristics mean.

Response: These values are provided in Table 5-8, under the hydrogeology section. A discussion of the aquifer characteristic terms can be added if requested.

73. **Comment**: Page 5-29 - Section 5.2.3.7 - Why were 2 lone test pits completed on October 20, 1994 in addition to the 42 test pits in June 1994?

Response: The following statement will be added to the text. "During detailed review of the data, it was discovered that two test pits installed during the investigation missed the GPR identified anomaly by exactly 10 meters. These two test pits were then installed."

74. **Comment**: Page 5-42 - Section 5.3.2 - This section now gives the values for the aquifer characteristics. There should also be a qualitative discussion about these terms and they should be compared to literature values for similar soil conditions and geology.

Response: A comparison of test results can be added if requested.

75. **Comment**: Page 5-44 - Section 5.4.1.2 - Again, as with site 1, the discussion and presentation of data on metals "greater than background" is being presented but the demonstration or statistical analysis that supports this is not presented or referenced.

Response: See response to previous comment.

76. **Comment**: Table 5-9 - More than 95% of the data is estimated. To be able to properly evaluate the data the table should have footnotes that explain why data is flagged with a "J". Also, as with the previous section, there are numerous cases where compounds are being detected below the method detection limit. This is not possible.

Response: See response to previous comments.

77. **Comment**: Page 5-79 - Section 5.4.2 - Show the results of the temporary well sample results graphically. The same should be done with the results of the permanent well sampling - especially since there is discussions on contaminant "plumes".

Response: These maps can be generated if requested. However, a relatively extensive effort would be required.

78. **Comment**: Page 5-84 - Table 5-12 - The MDLs are missing from the table.

Response: MDLs are present in the table.

79. **Comment**: Page 5-104 - Where are the calculations for the representative concentrations?

Response: Calculations will be added to the Appendices.

80. **Comment**: Appendix B - The boring logs for soil borings FC-SB-04 and FC-SB-05 are missing.

Response: These sheets will be added.

81. **Comment**: Page 5-116 - Section 5.6.6 - this section states "occupational receptors are exposed during routine activity, and detected levels of PCBs may be sufficient to cause cancer at an incidence of approximately one in 23,000 individuals." Add that this is still within the EPAs acceptable risk range. Another suggestion would be to put the last sentence of this section (on Page 5-120) here.

Response: Agreed.

82. **Comment**: Page 5-121 - Section 5.7 - In the first conclusion a source other than the fire training ring and west of the ring is mentioned. It is also stated that the presence of this source is based on groundwater data only. This is an inference and not a conclusion. Is further sampling required? Did test pits confirm the absence of drums in this area?

Response: No additional testing is proposed for this area. No drums were found in this area.

83. **Comment**: Page 5-121 - Section 5-7 - In the third conclusion statement that the levels of PCBs are all below the generally acceptable industrial clean-up standard of 10 ppm.

Response: Agreed.

84. **Comment**: Page 5-121 - Section 5.7 - In the fourth conclusion, delete the word "toxic". In the fifth conclusion, add the following to the end of the last sentence ".... and it appears that widespread drum disposal/burial did not occur at the site".

Response: See previous response to the use of the work "toxic". Statement will be added.

85. **Comment**: Page 5-122 - Section 5.7 - The second conclusion on this page states that the extent of soil contamination is adequately defined. What is it? Also, in the last conclusion, it is very doubtful that manganese should end up as a contaminant of concern. How has this element been demonstrated to be above background?

Response: As discussed during our 04/13/95 teleconference, the following will be added to the report. "The estimated areal extent of contaminated soil is 80,000 SF. At an average depth of approximately 8.2 feet, the estimated volume of contaminated fill is 25,000 CY. The t-test found manganese to be present at concentrations above background.

86. **Comment**: Appendix F - The first set of drawdown data does not identify which well the data was taken from.

Response: Data will be clarified.

87. **Comment**: Page 6-5 - Section 6.2.3.1 - Soil and groundwater contamination at the fuel calibration area is no longer "potential".

Response: See response to previous comment.

88. **Comment**: Page 6-7 - Same section - What happened to soil gas samples 6A-33A, 6A-4B, 6A-7B and 6A-35B? The text states that they were not sent off to Target's fixed-based lab. Were they sent to another lab?

Response: As indicated in the text, no samples were collected at these points.

89. **Comment**: Page 6-7 - Same section - There is mention of a "20 psi flow". This is incorrect terminology. Pressure is measured in force per unit of area (psi) whereas flow is a measurement of volume.

Response: The 20 psi flow refers to the flow induced from this pressure gradient. No flow measurements were made.

90. **Comment**: Page 6-14 - Table 6-2 - Why were only some of the temporary wells included in the survey?

Response: The number of surveyed points was reduced at the request of the Navy during scoping.

91. **Comment**: Page 6-16 - Section 6.2.3.4 - Describe the rationale used to select the screened intervals for the permanent monitoring wells. Other than Table 6-3 is there any other documentation (such as field notes) that shows the screened intervals? This applies to all sites.

Response: The shallow monitoring wells were always screened across the water table. The rationale for the selection of the screened depth for the intermediate wells is provided in each section under Permanent Monitoring Well Installation, e.g. 6-16, last paragraph and 5-20, second paragraph.

Soil boring log sheets for monitoring wells, monitoring well construction sheets, and gamma ray logs are provided in Appendices A, E, and I, respectively.

92. **Comment**: Page 6-21 - Table 6-4 - The elevation of the water table appears to be the difference between the top of the riser (in feet above mean sea level) and the depth to the water (in feet below grade). Is the top of the riser equal to the elevation of the grade for all monitoring wells? If not, the elevations would be off by a factor equal to the distance from the top of each riser to grade.

Response: The top of the riser is not typically equal to grade. Generally top of concrete (see Table 6-3) is more representative of grade, although it to can be offset by several inches.

Footnote 1 on Tables 4-3, 5-4, 6-4, and 7-4 will be revised to "In feet below top of riser."

93. **Comment**: Page 6-28 - Section 6.3.2 - The slug test calculations are not contained in Appendix F as stated in the text.

Response: Calculations will be added.

94. **Comment**: Page 6-39 - Table 6-7 - Virtually all of the data is estimated data. Is this something to be concerned about? 34% of the data in this table is for detections that are below the laboratory detection limit. Please explain.

Response: No. See response to previous comment.

95. **Comment**: Page 6-54 - Section 6.4.1.2.2 - Provide more detail about the analytical problems noted here.

Response: See response to previous comment.

96. **Comment**: Page 6-59 - Table 6-10 - The MDLs are missing. Also, as done with the soil gas results, present the temporary monitoring well results graphically. This also needs to be done for the permanent wells - especially since the report is referring to "groundwater plumes".

Response: MDLs are present in the table. If requested, graphical presentation of data can be prepared.

97. **Comment**: Page 6-8[4] - In the last conclusion on this page, would it not be fair to state that soil contamination at this site is relatively minor and limited to the vicinity of soil borings 4 and 5?

Response: Agreed.

98. **Comment**: Page 6-85 - The second to the last conclusion states that due to low hydraulic gradient at the site, extensive contamination beyond the area tested would not be expected. This statement appears in the conclusion sections for each site. Keep in mind that the hydraulic gradient may be relatively low, however the hydraulic conductivity is quite high. The net result is, in this reviewers opinion, we have relatively fast groundwater here (throughout Calverton).

Response: The estimated hydraulic conductivity for the sites is 100 ft/day, the storativity is 0.25, and the hydraulic gradient is approximately 0.001. This corresponds to a seepage groundwater velocity of 144 feet per year (V_s = ki/n). As a result, the referenced statement will be deleted from the report.

99. **Comment**: Section 7 - Comments form previous sections regarding detections below MDLs apply here also. The fourth conclusion on page 7-58 is incorrect. Chloroethane, chloroform and 1,1,1-trichloroethane were all detected below both the state and federal drinking water standard. The fuel-type compounds were found to be above the state standards and not the federal standards.

Response: Sentence will be modified as stated.

100. **Comment**: Section 7 - The conclusions section should state that the risk numbers do not exceed the EPAs upper limit 1 in 1 million excess cancer risk, making a no action alternative a viable final alternative for this site.

Response: Need to clarify. Groundwater contaminants do exceed groundwater standards, so it would be difficult to justify no action for groundwater. We do agree that soil could be eliminated from further consideration, providing that the one hit becomes part of the groundwater.

101. **Comment**: The chain of custody forms in Appendix C show transfer of custody of the samples to Federal Express. Provide copies that show transfer of custody to RECRA.

Response: Agreed.